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31 May 1967

MEMORANDUM

SUBJECT: Evaluation of Alternative Programs for
Bombing North Vietnam

1. This memorandum is in response to a request from the Secretary of Defense for an assessment of alternative bombing programs in terms of their effects on the flow of men and materiel to the South, losses of US pilots and aircraft, and the risk of increased military or political pressure from the USSR and Communist China. Each of the specific alternatives are evaluated separately.

Alternative I: To concentrate the bombing of North Vietnam on the lines of communication in the Panhandle Area (Route Packages I, II, and III) and to terminate bombing in the remainder of North Vietnam unless there occurred reconstruction of important fixed targets which have been destroyed by prior raids or unless new military activities appeared.

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The Flow of Men and Materiel

2. Alternative I cannot be expected to reduce the flow of men and materiel to the South below present levels. It would undoubtedly increase the costs of maintaining the logistic system and would degrade its capacity somewhat further. This judgment is based on the results of the Rolling Thunder program to date and on the nature of the logistic target system.

3. During the period January 1966-April 1967, the logistics target system included in Route Packages I, II, and III has received about 70 percent of the attack sorties flown in the Rolling Thunder program. Despite the intensity of the attack, the North Vietnamese now have a greater capacity to move men and supplies than they did when the bombing started.

4. We estimate, based on performance to date, that the actual movement of supplies from North Vietnam into Laos and South Vietnam during the 1966-1967 dry season will be greater than it was during the 1965-1966 dry season. The volume of supplies moved by trucks through the Mu Gia Pass route alone will exceed that moved last season. In addition, the North Vietnamese are moving supplies along Routes 137/912. There is no roadwatch reporting on this

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movement, but if the route is being used to the same proportion of its capacity as the Mu Gia route, the volume of supplies available for stockpiling in Laos or for movement to South Vietnam during the current dry season could be as much as 15,000 tons or about four times greater than the amounts to South Vietnam through Laos 1965-1966 dry season.

5. The expected effects from the interdiction campaign are more evident when actual traffic is compared to route capacity. During the 1965-1966 dry season, truck traffic on Route 15 through Mu Gia Pass averaged 28 trucks daily or about 85 tons of supplies a day. At this level of traffic the route was being used to less than 20 percent of its capacity of 450 tons a day. Since the 1965-1966 dry season the capacity of Route 15 has been increased to about 740 tons a day. Traffic during the current and longer dry season averaged 23 trucks a day or about 70 tons of supplies. This level of traffic is less than 10 percent of the current capacity of Route 15.

6. The ability of North Vietnam to maintain and improve its logistic network is impressive. During 1966 some 340 miles of alternative routes were built in Military Region IV*

*Military Region IV accords roughly with Route Packages I and II.

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to augment Routes 1A and 15. The route capacities of almost all the major highways in Military Region IV have increased during the past year as shown in the following tabulation:

<u>Route Number</u>	<u>Dry Season/Wet Season Capacity In Short Tons Per Day</u>	
	<u>August 1966</u>	<u>May 1967</u>
1A	900/100	960/120
15	450/100	740/250
101	610/120	610/120
137	450/100	500/100

7. The routes in Laos have not been maintained as well as those in North Vietnam. The capacity of Route 12, which leads from Mu Gia Pass, has been reduced by about 25 percent as compared to the last dry season, and the capacity of Route 23 has been reduced by 40 percent. Despite these reductions, the capacity of other roads has been maintained and in some cases increased, and the logistic network has been improved overall. During 1966, for example, more than 400 miles of new road were constructed in Laos, more than doubling the road network. During the first three months of 1967 at least 30 by-pass roads and 38 truck parks or refueling areas were constructed in Laos. The net result

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is that the North Vietnamese have retained the same capacity they had last year to move at least 400 tons of supplies a day to the end of the motorable routes along the border of South Vietnam.

8. It is difficult to predict the extent to which the interdiction program proposed under Alternative I could reduce the capacity of the road system in Route Packages I, II, and III. A case study of US bombing in North Vietnam indicates that the maximum reduction achieved in bombing roads was about 25 percent. Even if a more intensive program were to double this rate of interdiction, the capacity remaining on the two major routes into Laos--15 and 137-- would still be at least five times greater than that required to move supplies at the 1966-1967 dry season rates.

9. The major effect of the program outlined in Alternative I would be to increase the requirements for manpower and vehicles needed to sustain the movement of supplies. We estimate that an intensified interdiction program would raise the manpower requirement by about 20,000-25,000 persons. This would be a 30-percent addition to the manpower now used to maintain logistic routes in Military Region IV and in Laos. The added burden could be met easily. North Vietnam has an estimated 220,000 full-time and 100,000 to 200,000 part-time

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workers engaged in repair, reconstruction, dispersal, and transport programs. An unknown but significant share of these workers could be relocated as the bombing program proposed in Alternative I would lessen the manpower requirement in other areas of North Vietnam.

10. North Vietnam presently uses an estimated 2,000 trucks to handle the entire logistic effort based in Military Region IV--for the forces around DMZ, the forces in Northern Laos, the forces in the Panhandle of Laos, and the forces in South Vietnam. Less than 400 trucks are used to move supplies in Laos to the border of South Vietnam. Even if the interdiction program were to double the rate at which vehicles are destroyed or damaged, these losses could be replaced from the existing inventory of trucks, estimated at 12,000-13,000 vehicles, or by increased imports from Communist countries. During the past 16 months imports of trucks totaled at least 4,400 vehicles and estimated losses to air attack were about 3,400. Thus the truck inventory increased by about 1,000 vehicles during the period.

11. In summary, the excess capacity on the road networks in Route Packages I, II, and III provides such a deep cushion that it is almost certain that no interdiction program can neutralize the logistics target system to the extent necessary to reduce the flow of men and supplies to South Vietnam below their present levels.

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Losses of US Pilots and Aircraft

12. The concentration of bombing in Route Packages I, II, and III, as outlined in Alternative I, would, in the short term, be less costly in terms of losses of US pilots and aircraft. This is apparent in the statistics for combat losses of aircraft during the first four months of 1967. A total of 80 US aircraft were lost during this period. Only 18 aircraft, or 22 percent of the total, were lost in combat over Route Packages I, II, and III, although about 70 percent of all attack sorties were flown over this area.

13. When it becomes apparent to the North Vietnamese that the bombing is being concentrated in Route Packages I, II, and III and that a virtual sanctuary exists in most other parts of the country, they can be expected to increase their air defenses and to move more SAMs into the region. A greater defense would increase US aircraft losses although this area probably would never be as heavily defended as Route Packages VIa and VIb.

Soviet and Chinese Responses

14. Alternative I would substantially reduce the chances of increased military or political pressures on the US from both China and the Soviet Union. The Chinese would attribute

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such a change in US policy primarily to a lack of will in the face of rising domestic and international criticism and to a general frustration in the US over its inability to bring the war to a successful conclusion. The Chinese, therefore, would almost certainly advise Hanoi that, having scored an important gain, the North Vietnamese had even greater incentive to persist in their current strategy of protracted war.

15. At the same time, neither Hanoi nor Peking could be certain that the US would maintain restrictions on the bombing. There would be a continuing expectation that the US would resume attacks north of the 20th parallel as soon as reconstruction of important installations made visible progress. There would also be some suspicion, particularly in Peking, that the US had taken the move to prepare the groundwork for a diplomatic effort to persuade Hanoi to make peace.

16. Moscow would be relieved that the US had broken the cycle of escalation. The Soviets, too, would be inclined to construe the US move as a concession to pressures at home and abroad. They would probably also recognize, however, that the US might have valid military reasons for concentrating

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bombing on the logistics funnel. And the Soviets might also conclude that the chances that the US would persist in a long ground war in South Vietnam had actually improved if the criticism of the bombing program receded.

17. These attitudes of both the USSR and China are in the context of an adjustment of bombing policy, without reference to any other US moves. If, for example, the US also increased its troop strength, this might dispel some of the misapprehension over US resolve. Or, if the US undertook some political initiatives to exploit the new bombing policy, this might influence the Communist response. Whether or not Hanoi responded to these initiatives would depend on its view of the military outlook in the South, and on whether it believed that a move toward negotiation would bring success nearer. China, of course, would continue to oppose any movement in this direction. But if Hanoi did decide to explore the possibilities for an end to the bombing followed by negotiations, then the USSR would almost certainly become more active in assisting the development of a negotiating situation.

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Alternative II: To terminate the bombing of fixed targets not directly associated with LOC's in Route Packages VIa and VIb and simultaneously expand the armed reconnaissance operations in those sectors by authorizing strikes on all LOC's, excepting only those in an eight-mile circle around the center of Hanoi and an eight-mile circle around the center of Haiphong. This program would include continuous strikes against MIG aircraft on all airfields. Further, the program would involve two variants:

- a. To prohibit strikes against ports and port facilities.
- b. To include every effort to deny importation from sea.

The Flow of Men and Materiel

18. Neither of the variants proposed under Alternative II could obstruct or reduce North Vietnam's import of military or war-supporting materials sufficiently to degrade its ability to carry on the war. This is true even if the variants were

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assumed to include attacks on lines of communications in the Northwest.

19. Alternative II apparently diminishes the interdiction effort against the logistics target system in Route Packages I, II, and III. If this is so, it would be counter-productive in terms of reducing the capacity and increasing the difficulty of moving men and materiel to the South. Taken literally, this Alternative has two other deficiencies. First, it omits attacks against the Hanoi - Lao Cai rail line, and the parallel road systems in the Northwest (Route Package V). Second, it would preclude restrikes against military and industrial fixed targets other than airfields.

20. North Vietnam now has the capacity to move about 14,000 tons of goods a day on its major rail, sea road and inland water import routes. It has been estimated previously that an optimum program against all means of land and water transportation could at most reduce North Vietnam's transport capacity to import from 14,000 tons a day at present to about 3,900 tons. Interdiction to this extent would reduce the present level of goods imported by about 25 percent, since North Vietnam presently imports an average of 5,300 tons of goods daily. If imports were kept to manageable

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levels by eliminating all but essential military and economic goods, daily imports would average about 3,000 tons a day. This amount of traffic could be handled even if the daily capacity of North Vietnam's transport system were reduced to 3,900 tons.

21. Imports at this level would not be sufficient to continue operations of modern industrial plants or to restore operation of those which have received extensive bomb damage. The economy would be reduced to its essential subsistence character, but those modern sectors such as transportation, construction, communications, and other elements essential to support the military establishment in North Vietnam and in the South could be sustained.

Losses of US Pilots and Aircraft

22. Alternative II, particularly in the variant calling for attacks on port facilities and other targets in the Haiphong area, would be the most costly in terms of losses of US pilots and aircraft. A total of 28 aircraft or 35 percent of the total were lost in combat during attacks against targets located in Route Package VI during January-April 1967. The extension of the Rolling Thunder program to attacks in the Hanoi-Haiphong area has resulted in an extremely high loss rate. During

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January-April 1967, the US air forces operating over all of North Vietnam experienced a loss rate of 0.33 percent. During the period 20 April-14 May 1967, the forces attacking targets in the immediate Hanoi-Haiphong area had a loss rate of 3.6 percent.

23. In addition, the concentration of attack on the Hanoi-Haiphong area will result in a sharp decline in the recovery of downed pilots because of the heavy defenses and greater population in the area. Although statistics on recovery of downed pilots by Route Package area are not available, the recovery rate has declined markedly as the air campaign extended into the Hanoi-Haiphong area. During 1966 the recovery rate was 40 percent. During the first four months of 1967 the recovery rate declined to 28 percent.

Soviet and Chinese Responses

24. The first variant of Alternative II would not necessarily be perceived by the Communists as a change in US bombing policy. While it would become apparent that the US was avoiding certain fixed targets and the Hanoi and Haiphong vicinities, Hanoi, Peking, and Moscow would probably read the attacks on all the airfields as an intensification of the air war.

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25. It is unlikely, however, that this variant would cause any radically new or different political or military responses from the USSR or Communist China. Their main efforts, as before, would be to provide the necessary support to Hanoi to maintain a flow of supplies and a strong air defense. The Chinese would probably reinforce their anti-aircraft and logistical forces along the rail line from Hanoi to Dong Dang. During this bombing campaign it is also possible that the USSR would provide more effective weapons for the defense of North Vietnam.

26. The principal danger of a greater Chinese military involvement would probably arise from the bombing of all the airfields. The North Vietnamese would try to continue air defense operations for as long as possible. But the time might come when the conditions of the fields made operations too difficult or virtually ineffective. At this point, the North Vietnamese might want to transfer operations to bases in China.

27. We think the Chinese would be highly reluctant to accept the risks to their own territory from such operations. But if the North Vietnamese did insist on operating out of Chinese bases, the Chinese probably could not afford to rebuff them. Thus, there is a chance that the Chinese would

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allow some limited operations by the North Vietnamese from bases in China, but under the tightest Chinese control so as to minimize the risks of US retaliation.

28. Regardless of whether the North Vietnamese sought a sanctuary of some kind in China, there would be a continuing danger of air incidents near the Chinese border or over Chinese territory. On several occasions in recent weeks the Chinese have responded more vigorously to US air intrusion and to US strike aircraft flying over North Vietnam near the border. This seems likely to continue, as the nature of US air operations involves a chance of extending over Chinese territory. As for the USSR, we would not exclude the surfacing at some point of some Soviet military personnel in a "volunteer" role. In any case, increased Soviet and Chinese support would probably have the effect of reinforcing Hanoi's determination to persevere in its policies despite greater pressures on supply lines to China.

29. Variant b. The most important additional effect of this variant would be the direct challenge it posed to the USSR. The Soviets might consider countering the interdiction by military actions in the area, or bringing pressures on the US or its allies in other areas (say Berlin). But these two courses seem too hazardous or unpromising. It is much more

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likely that the main Soviet response would be to continue supplying Hanoi, transportation arrangements with China permitting, and to put maximum political pressures on the US. Moscow would try to mobilize world opinion on the issue of blocking free passage of all shipping, and, depending on Hanoi's attitude would consider taking the matter to the UN. In addition, it would be likely to take other diplomatic actions which would demonstrate the damage to US-Soviet relations across the board.

30. Nevertheless, as the crisis intensified, there is a good chance the USSR would make a stronger effort toward a political solution, urging the course of negotiations more vigorously than they have heretofore. But they probably would still not be willing to make Hanoi's acceptance of talks an explicit condition of continued material support.

31. The interdiction of North Vietnamese ports would not in itself compel the Chinese to undertake new military actions. It is highly unlikely that the Chinese would enter the war at this point. It is likely, however, that the Chinese commitment to support Vietnam would be strengthened. If requested, the Chinese might introduce some combat troops in North Vietnam. The net result of this program would be to

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place China in a more influential position in Hanoi, since the remaining lines of supply would be under Peking's control. The main thrust of China's growing leverage and influence would be directed toward persuading Hanoi to continue the fight.

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